









Strategies supporting the implementation of simulation-based education in nursing and midwifery in Malawi: A mixed methods study

P Mapulanga,¹ PhD ; M Msiska,² PhD ; A Msosa,³ PhD ; I Tjoflåt,⁴ PhD ; K Hjorthaug Urstad,⁴ PhD ; B Bø,⁴ PhD ; E C Furskog-Risa,⁵ PhD ; G Mwalabu,³ PhD 

¹ Library Department, Kamuzu University of Health Sciences, Lilongwe, Malawi

² Department of Biomedical Sciences, School of Life Sciences and Allied Health Professions, Kamuzu University of Health Sciences, Lilongwe, Malawi

³ Department of Adult Health Nursing, School of Nursing, Kamuzu University of Health Sciences, Lilongwe, Malawi

⁴ Department of Quality and Health Technology, Faculty of Health Sciences, University of Stavanger, Stavanger, Norway

⁵ Department of Caring and Ethic, Faculty of Health Sciences, University of Stavanger, Stavanger, Norway

Corresponding author: P Mapulanga (pmapulanga@kuhes.ac.mw)

Background. Nursing and midwifery training institutions are responsible for preparing the future nursing and midwifery workforce to ensure that they practise in accordance with the applicable patient safety standards. As such, simulation-based education (SBE) is thoughtfully being implemented in many parts of the world to train nursing and midwifery students to help the graduates to acquire the technical and non-technical skills needed to deliver safe patient care. This study, therefore, attempted to identify strategies for implementing SBE in nursing and midwifery in Malawi.

Objective. To identify strategies for implementing SBE in nursing and midwifery in selected education institutions and clinical sites in Malawi.

Methods. The data were collected using mixed methods with questionnaires, in-depth interviews, focus group discussions and desk reviews of nursing and midwifery syllabuses and curricula documents in Malawi. Two hundred and ninety-three participants responded to the questionnaire (144 clinical instructors and 149 final-year nursing and midwifery students). Ten focus group discussions were held with fourth-year students. In-depth interviews with deputy hospital directors (nursing and midwifery services), college principals, deans, department heads and other key stakeholders were conducted. The College of Medicine Research and Ethics Committee granted ethical approval for the study. Quantitative data were entered into SPSS version 23.0 for descriptive statistics, and qualitative data were thematically analysed using NVivo 12.

Results. The study identified several strategies for implementing SBE in Malawi, including building appropriate simulation infrastructure ($n=115$; 39.3%), training educators on simulation ($n=130$; 44.4%), training clinical instructors/preceptors ($n=106$; 36.3%) and purchasing appropriate equipment ($n=202$; 68.9%). Scenarios with standardised patients and collaborative work in simulation between clinical staff and academics in training institutions and clinical settings were critical strategies for implementing SBE in Malawi.

Conclusion. The successful implementation of SBE in nursing and midwifery in Malawi relies on a holistic approach that encompasses infrastructure, educator training, collaboration, scenario development, curriculum integration and ongoing evaluation. The journey towards realising these goals will undoubtedly require dedication, persistence, and the collective efforts of all stakeholders involved in nursing and midwifery education in Malawi.

Keywords. simulation, nursing, midwifery, education, educators, challenges, clinical teaching

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Nursing and midwifery education institutions are crucial in preparing future healthcare professionals to provide skilled, safe, effective and compassionate care to patients.^[1] A critical tool in this preparation is simulation-based education (SBE), which involves using realistic scenarios and equipment to simulate clinical situations that students will possibly encounter in their future practice.^[2]

SBE has become increasingly popular in nursing and midwifery education, offering several advantages over traditional classroom-based learning.^[3] These advantages include allowing students to practise their skills in a safe and controlled environment, providing feedback and evaluating performance, and exposing students to various clinical scenarios and situations.^[4]

In Malawi, nursing and midwifery education institutions recognise the importance of SBE in training such professionals and identifying the need to explore strategies for its effective implementation. Therefore, this study

aimed to identify these strategies, considering the unique challenges and opportunities the Malawian context presents. By identifying these effective strategies for implementing SBE in nursing and midwifery education in Malawi, this study can contribute towards improving the quality of healthcare delivery in the country and patient outcomes.

Objective

The study aimed to recognise strategies for implementing SBE in Malawi's nursing and midwifery education institutions and clinical sites. It is part of a more extensive baseline study conducted to understand the current state of SBE implementation in Malawi and identify strategies that could be used to improve the quality and effectiveness of SBE in the country.

The findings of the study have the potential to inform policy and practice in nursing and midwifery education in Malawi and beyond, contributing to the ongoing efforts to improve the quality of healthcare and patient safety.

Methods

This study used a mixed methods approach to provide a more comprehensive understanding of the research questions, triangulate data sources and validate findings from multiple perspectives.^[5] In the explanatory sequential design, quantitative data were collected and supplemented by qualitative data. Qualitative data were used to explore or delve deeper into quantitative results.^[5]

The data were collected using mixed methods with questionnaires, in-depth interviews, focus group discussions and desk reviews of Malawi's nursing and midwifery syllabuses and curricula documents. Two hundred and ninety-three participants responded to the questionnaire (144 clinical instructors and 149 fourth-year nursing and midwifery students). Ten focus group discussions were held with fourth-year students. In-depth interviews with deputy hospital directors (nursing and midwifery services), college principals, deans, department heads and other key stakeholders were conducted. The questionnaire was designed to gather information on the strategies and opportunities associated with SBE implementation for the more extensive baseline study. The questionnaire consisted of six sections covering different aspects, such as participants' demographic data, their experience in using SBE, their perceived value of SBE for learning, challenges in using SBE and strategies for implementing SBE. This article only focuses on strategies for implementing SBE in nursing and midwifery education in Malawi.

Qualitative data were collected through in-depth interviews and focus group discussions in the participants' institutions. The information covered benefits of SBE, the participants' experiences in using SBE, challenges in using SBE and how the use of SBE in Malawi can be improved. A total of 35 interviews were conducted with key informants, including deputy hospital directors (nursing and midwifery services), college principals, deans, department heads, the director of nursing and midwifery services from the Ministry of Health, and the registrar for the Nurses and Midwives Council of Malawi. These interviews aimed to gather detailed insights into the challenges and opportunities surrounding the implementation of SBE in Malawi, as well as strategies that could be employed to enhance its implementation.

Furthermore, 10 focus group discussions were conducted with fourth-year nursing and midwifery students. Each focus group comprised 6 - 10 participants - males and females. These discussions provided a platform for students to share their personal experiences and perspectives regarding the implementation of SBE in Malawi. Additionally, a desk review of nursing and midwifery syllabuses and curricula documents in Malawi was conducted to gain a broader understanding of the country's current nursing and midwifery education, focusing on teaching methodologies.

The quantitative data collected were entered into SPSS version 23.0 (IBM, USA) for descriptive statistical analysis, while thematic analysis was conducted for the qualitative data, based on Braun and Clarke's^[6,7] six steps as follows: familiarisation of data, generation of initial codes, identification of themes, definition and naming of themes, and production of the final report. The analysis was conducted concurrently with data collection to enhance data quality. Employing rigorous research methods, triangulation involving multiple sources, utilisation of adequate sample size, and peer review and member sharing ensured the validity and reliability of the study findings.

Ethical approval for the study was obtained from the College of Medicine Research and Ethics Committee, Kamuzu University of Health Sciences, Lilongwe, Malawi (ref. no. P.07/21/3362).

Results

The qualitative and quantitative data analysis identified several strategies that could be employed to improve the implementation of SBE in Malawi. These are presented in the subsequent paragraphs.

Establishing appropriate SBE infrastructure and ensuring its accessibility

One of the critical strategies identified as essential was building appropriate simulation infrastructures, which was mentioned by 115 (39.3%) of the participants. This strategy includes the physical infrastructure for simulation sessions, such as SBE laboratories, mannequins and other equipment.

Establishing 24-hour simulation centres in nursing and midwifery education institutions and simulation corners in health facilities was also identified as an essential strategy. These centres and corners, if well equipped, would provide students with opportunities to practise clinical skills under the supervision of faculty members or clinical instructors:

'Effective simulation requires appropriate infrastructure that is open 24 hours with adequate space, lighting and resources such as manikins or dolls, adjustable beds and mattresses even in the clinical setting.' (Senior lecturer 3)

Ensuring formal training of nursing and midwifery educators

Training of educators in SBE was also identified as an essential strategy by 130 (44.4%) participants. This involves formal training for nursing and midwifery educators on the effective use of SBE in their teaching. Furthermore, the training of clinical instructors/preceptors in SBE was identified as an essential strategy by 106 (36.3%) participants. This formal training would provide educators with the skills and knowledge necessary to use SBE in teaching effectively. The training would help faculty and clinical instructors to understand the technology and methodologies involved in SBE. One of the participants explained that:

'We need to build our capacity for simulation as educators, clinical instructors, preceptors, and qualified staff. It could be through formal training or [continuous professional development] CPD, refresher courses or on-job or in-service training to improve quality of clinical teaching.' (Stakeholder 1)

Establishing collaboration with effective planning

Another critical strategy identified was the need for a collaborative effort that will assist in the securing of appropriate equipment and other resources, which 202 (68.9%) participants mentioned. This strategy includes purchasing the necessary equipment and supplies needed for simulation sessions. Therefore, identifying and securing these resources are critical to implement SBE effectively. Collaborating with industry partners and other stakeholders can help to secure these resources:

'There is a need for collaborative work for effective implementation of simulations among clinical staff, academics and the industry if we are to secure relevant equipment and improve clinical teachings.' (Principal nursing officer 1)

Collaborative work in simulation between academics and clinical staff in classroom and clinical settings was also identified as an essential strategy. This collaboration was reported to ensure that SBE is implemented in an environment where all the players positively contribute to the initiatives so that students acquire the knowledge and skills to help them deliver quality patient care:

'Simulation demands collaborative efforts between educators and clinical instructors in terms of how it should be done, the purpose for doing it,

who is to be involved and how to communicate to each other in order to effectively assist students to transfer what they have learnt into practice.' (Principal nursing officer 4)

From the participants' abovementioned accounts, there is a need to develop a clear implementation plan. Such a plan would outline the purpose, goals, resources and timeline for SBE. The plan can help to ensure that each collaborator is involved and understands their role, and is doing their part. For this plan to be effective, it should include a communication strategy that informs all stakeholders, including students, faculty and clinical partners.

Developing well-designed and multidisciplinary scenarios with standardised patients

Another strategy that some participants mentioned was using scenarios with standardised patients (SPs). This strategy was considered essential for implementing SBE in Malawi. It addresses local needs and practices, as it involves using actors trained to portray specific patient scenarios to simulate realistic clinical situations:

'For simulation to be effectively implemented, lecturers and clinical instructors need to know how to develop good and multidisciplinary scenarios and develop standardised patients.' (Senior lecturer 5)

Integrating SBE throughout the curriculum

The study further showed the urgent need to integrate SBE into the nursing and midwifery curriculum, which could help students to receive adequate exposure to this innovative teaching method, as most of the content could be delivered through SBE. It could give students sufficient experience practising different skills in a safe environment. Participants felt that fostering a culture of innovation and continuous improvement could help to ensure that SBE remains relevant and practical. Encouraging faculty and students to share their ideas for improving SBE could help to drive innovation and improve the quality of SBE:

'Nursing is a dynamic field that requires expertise, innovative teaching methods and evidence-based case studies to support the clinical teaching, yet our training institutions and curricula lack SBE content, experts, incorporation of SBE and innovative clinical teaching strategies, respectively. In a simulation, students need to develop skills of self-assessment of performance through standardised patients or manikins, thereby enriching clinical experiences and confidence.' (Lecturer 8)

Constant evaluation and improvement of the implementation of SBE

The study finally found that evaluating the impact of SBE in the training of nurses and midwives is essential to determine whether it achieves the intended outcomes. The evaluation can be done through student performance assessments and feedback. It was revealed that such evaluation exercises would help to improve the implementation of SBE as some lessons could be learnt:

'Focusing on the phases of simulation, students are able to know what to do, how they have done it, well or bad, assess themselves, assess their performance and given feedback by the facilitator.' (Lecturer 9)

Discussion

SBE is an effective way to prepare nursing and midwifery students for the real-world clinical environment by providing them with a safe and

controlled environment to practise their skills.^[1] However, for effective implementation of SBE in clinical areas and nursing and midwifery education institutions, there is a need to put in place proper strategies. Based on the current study findings, we discuss the strategies identified to implement SBE in programmes that train nurses and midwives in Malawi.

SBE infrastructure and its accessibility

Building appropriate simulation infrastructures was indicated as one of the strategies that could be used to implement SBE in Malawi successfully. This aligns with another study in Lesotho that stated the need for proper infrastructure for SBE to be successfully conducted.^[8] Infrastructure includes the physical space necessary for SBE sessions to take place.⁹ Therefore, to support this strategy, nursing and midwifery education institutions and clinical sites in Malawi must invest in building SBE centres and establish simulation centres that would be accessible to users at all times.⁹ SBE centres and simulation corners must be equipped with all the necessary resources, such as oxygen, suction machines and other medical equipment. The authors of the Lesotho study indicated the importance of equipping the SBE infrastructure with all the required resources and supplies. The availability of appropriate infrastructure and all the necessary resources is vital in implementing SBE, as it ensures that the simulated environment is as close to the natural clinical setting as possible.^[8]

The acquiring of appropriate equipment was identified as another important strategy. This includes purchasing the equipment and supplies needed for simulation sessions to take place.^[10] However, some of the equipment for SBE is capital intensive, and therefore it may be challenging for institutions in resource-constrained settings to purchase all the required equipment.^[11] However, in the case of Malawi, as one of the resource-constrained countries, nursing and midwifery education institutions and health facilities could be encouraged to partner with other stakeholders, such as equipment suppliers that could donate SBE equipment or provide the equipment at reduced costs.

Formal training of nursing and midwifery educators

The second strategy identified was training educators and clinical instructors/preceptors on SBE. This could focus on training nursing and midwifery educators on effectively using SBE in clinical teaching, designing and implementing simulation scenarios, providing student feedback, and assessing student performance during simulation exercises. Such training is important, as it equips educators and clinical instructors with the necessary skills to conduct lessons using SBE and SBE equipment.^[12,13] Clinical instructors are essential in guiding and supervising nursing and midwifery students during their clinical placements. Therefore, they must be trained to use SBE effectively as a teaching tool and provide feedback to students during simulation exercises. Several studies have asserted that preparing students for their future professional roles could be possible only if educators and clinical instructors are better trained on innovative clinical teaching strategies such as SBE.^[3,14,15] Formal training will enable educators and instructors to be aware of SBE, its importance and issues, uses, delivery methods and assessment for effective implementation of the strategy.^[16] Training for clinical instructors and educators is also necessary, considering that some studies have indicated that certain equipment for simulation places demands on the technological ability of nurse educators because they need integration of technology into the classroom and necessitate greater engagement than other passive forms of training.^[17,18]

Developing well-designed and multidisciplinary scenarios

Using scenarios with SPs was identified as an essential strategy for implementing SBE in Malawi to address local needs and practices. SPs are actors trained to portray specific patient scenarios to simulate realistic clinical situations.^[19,20] Partnerships with institutions with experience in training SPs can support this strategy. In the case of Malawi, partnerships can be established with universities that offer drama training to allow their drama students to be used as SPs. Prior studies affirm that using scenarios with SPs is an internationally recognised learning strategy that has proven effective in creating realistic learning opportunities to enhance nursing students' competencies.^[21-23]

Planning, collaboration and evaluation in SBE implementation

Collaboration among different stakeholders in any activity is essential in fulfilling the activity's intended goal. It was, therefore, not surprising that collaboration was mentioned as one of the strategies that could help implement SBE in nursing and midwifery education in Malawi. The most critical stakeholders in the implementation of SBE include students, educators in nursing and midwifery education institutions and clinical staff in clinical settings. Collaboration among these stakeholders would help to ensure that SBE implementation is done smoothly and that students have the skills and knowledge necessary to deliver a safe patient care strategy.^[13] A lack of collaboration among the required stakeholders would disadvantage the students, as they may not be fully equipped to practise at the clinical sites. For collaboration, there is a need to develop a clear implementation plan so that all stakeholders are aware of their responsibilities. The plan can also be used to evaluate how SBE is being implemented. Evaluation is critical in implementing any activity, as it helps one to know what is working well/not working so that improvements can be made. Collaboration will help to ensure that simulations are relevant to real-world clinical practice and provide students with the skills and knowledge necessary to deliver safe patient care.^[3,24]

Integrating SBE throughout the curriculum

The Nurses and Midwives Council of Malawi is a regulatory body for nurses and midwives in Malawi, and one of its responsibilities is to develop syllabuses for nursing and midwifery education. Therefore, the council is responsible for implementing SBE in Malawi. The desk review of curricula documents at the Nurses and Midwives Council of Malawi showed that SBE is indicated as one of the methods educators can use to teach nurses and midwives. It is suggested to decisively integrate SBE into the nursing and midwifery curriculum. At the policy level, the Nurses and Midwives Council of Malawi may decide to make SBE a required teaching method in all the nursing and midwifery curricula so that all nursing and midwifery education institutions can fully adopt it. At the curriculum implementation level, educators could be required to develop SBE scenarios aligned with the learning objectives and competencies in the curriculum so that students are fully immersed in the method.

Study implications

The results of this study demonstrate that successful implementation of SBE in Malawi requires significant investment in simulation infrastructure, equipment and training of educators and clinical instructors. These findings also highlight the importance of prioritising SBE in nursing and midwifery education policies, curriculum development and resource allocation.

Furthermore, the findings have a bearing on the role of the Nurses and Midwives Council of Malawi in implementing SBE. As the regulatory body for nursing and midwifery education, it is mandated to reinforce the implementation of SBE in nursing and midwifery education institutions and health facilities. This mandate can help to ensure that SBE is integrated into nursing and midwifery curricula and that students are adequately prepared for their clinical placements.

Implementing SBE in nursing and midwifery education in Malawi is crucial for improving patient safety, enhancing the quality of care, and preparing nursing and midwifery graduates for their future roles. It requires a collaborative effort from all stakeholders, including policymakers, regulators, educators and clinical instructors to ensure that SBE is fully embraced and integrated into nursing and midwifery education in Malawi.

Conclusion

The successful implementation of SBE in nursing and midwifery in Malawi relies on a holistic approach that encompasses infrastructure, educator training, collaboration, scenario development, curriculum integration and ongoing evaluation. By embracing these strategies, Malawi can enhance the quality of nursing and midwifery education, ultimately improving healthcare outcomes for its population. The journey towards realising these goals will undoubtedly require dedication, persistence and the collective efforts of all stakeholders involved in nursing and midwifery education in Malawi.

Data availability. The datasets generated and analysed during the current study are available from the corresponding author upon reasonable request.

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Conflicts of interest. None.

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